EXPLANATORY NOTE

(This Note is not part of this Order, but is intended to indicate its general purport.)

This Order amends in two respects the Explosives in Coal Mines Order, 1934, as it applies to mines where permitted explosives only are allowed to be used:—

(*a*) with effect from the 16th February, 1948, the firing of shots in the roof of a longwall working or in any longwall waste is prohibited without a written authority signed by the agent and the manager, which may only be granted in specified circumstances.

(*b*) with effect from the 22nd March, 1948, a shotfirer is prohibited from firing a greater number of shots in any one hour or in any one shift than the maximum number fixed for him by the manager in accordance with the provisions of the Order.

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(3) FIREDAMP DETECTORS

The Firedamp Detectors (No. 5) Order, 1948

Made - - - - *28th April*, 1948
Coming into Operation *3rd May*, 1948

1948 No. 903

In pursuance of Regulation one of the Coal Mines General Regulations (Firedamp Detectors), 1939(**a**), the Minister of Fuel and Power (in this Order referred to as " the Minister ") hereby orders as follows:—

Approval of the Ringrose Automatic Firedamp Alarm. Type 47/125 subject to certain conditions.

1.—(1) The Ringrose Automatic Firedamp Alarm, Type 47/125 (in this Order referred to as the " detector ") more particularly described in Part I of the First Schedule to this Order is, subject to the provisions of the next following paragraph, hereby approved as a type of detector.

(2) The approval aforesaid is in the case of any detector subject to the conditions that:—

(*a*) the detector is constructed in accordance with the design and specification set out in Part I of the First Schedule to this Order;

(*b*) the detector is set to operate at one and one quarter per centum of firedamp;

(*c*) no component part is used therein which is not of a make and type approved for use therein by the Minister;

(*d*) a new unit comprising a combustion filament and support shall be fitted before the beginning of each working shift in which the detector is to be used; and no combustion filament or support shall be used in connection therewith which has not been supplied by the makers of the detector;

1 & 2 Geo. 5. c. 50.

(*e*) examination in pursuance of section thirty-four of the Coal Mines Act, 1911, shall be by the methods specified in Parts I and II of the Second Schedule to this Order and shall be made immediately before issue for use in any shift;

(**a**) S.R. & O. 1939 (No. 322) I, p. 368.

(*f*) the detector shall not be used in any working shift unless during that shift it has been tested by the method specified in Part II of the said Second Schedule by the person responsible during the shift for its use.

Publication of conditions.

2. A copy of this Order shall be kept posted in the lamproom and at the pit head of every mine in which any detector is in use.

Commencement and citation.

3. This Order shall come into operation on the third day of May, nineteen hundred and forty-eight; and may be cited as the Firedamp Detectors (No. 5) Order, 1948.

Dated this twenty-eighth day of April, 1948.

Donald Fergusson,
Secretary to the Ministry of Fuel and Power.

Article 1 (1) and (2).

FIRST SCHEDULE

Part I—Design and Specification

Name.

The Ringrose Automatic Firedamp Alarm Type 47/125 manufactured by International Gas Detectors Limited at Great Wilson Street, Leeds.

Design.

As in Drawings deposited by the makers with the Ministry of Fuel and Power, Mines Safety Research Branch, Portobello Street, Sheffield, numbered 1, 2 and 3 dated 31st January, 1948.

Weight of complete alarm.

6 lb. 8 ozs.

Components.

Battery:

Type.—Accumulator with flat plates and free acid electrolyte.

Nominal Voltage.—2 volts.

Capacity.—Not less than 15 ampere hours with a voltage drop to not less than 1.85 volts.

Combustion filament—palladium wire, No. 45 s.w.g. having a current consumption of not more than 1.05 amperes at 2 volts, connected across the terminals of a replaceable support, which is provided with two spring contact-pins to engage with corresponding sockets mounted on the contact-plate of the detector.

Lamp Bulbs.—Two, each fitted with an E.10 cap, one of clear glass rated at 4 volts and 0.3 ampere, and the other of red glass rated at 2 volts and 0.6 ampere, or, alternatively, 2 volts 0.75 ampere.

Part II—Method of Operation

The lantern of the detector is provided with two lamp bulbs connected in series, one giving a white pilot light, the other a red warning light. In normal operation and in an atmosphere containing no firedamp the current passing through the red bulb is insufficient to produce any light from it, but the white light remains continuously "on" and serves the purpose of showing the position of the detector in the working place. In the event of failure of either of the bulbs the white light will be extinguished, and so draw attention to the failure.

Air surrounding the detector passes through an outer protecting gauze, then through a felt filter and finally into a porous pot containing a heated palladium filament. At any time when firedamp is present in the ingoing air, it is continuously burnt by the filament and a reduction in atmospheric pressure is created and maintained inside the porous pot. A sufficient

reduction in pressure deflects a flexible metal diaphragm in such a way that two contacts are closed, thus completing an electric circuit which lights up the red bulb as a warning of the presence of firedamp in the air.

The diaphragm-contacts are adjusted so that this circuit is not complete and the red warning light is not shown until the percentage of firedamp in the air exceeds 1¼ per cent. The warning light remains on as long as firedamp in excess of 1¼ per cent. is present in the air.

Article 1 (2).

SECOND SCHEDULE

PART I—TEST 1

Design and construction of testing apparatus.

The testing apparatus consists of an alcohol gauge mounted on a stand provided with a 2-volt accumulator and a bracket to support the base of the lantern. The bracket is furnished with spring-contacts which make electrical connexion, by means of flexible leads, between the accumulator and the battery-contacts on the underside of the contact-plate of the lantern

The alcohol gauge consists of a graduated outer glass tube, closed by a stopper and containing coloured alcohol. An inner glass tube passes through the stopper to the bottom of the outer tube. Connexion between the inner glass tube and the nipple on the underside of the contact-plate of the lantern is made by means of a flexible rubber tube. The outer glass tube is marked with a zero mark and a " setting mark "; two further marks, one above and one below the " setting " marks are provided as the limits or tolerances on the " setting " operation. The level of the alcohol in the graduated tube is adjusted, if necessary, before use to the zero mark.

Method of Testing.

The accumulator is connected to the flexible leads of the testing apparatus. The lantern of the detector to be tested is removed from the battery case and the brass cap is unscrewed from the nipple on the underside of the contact-plate. The rubber tube of the alcohol gauge is connected to the nipple. The lantern is placed on the bracket of the testing apparatus. Suction is applied to the alcohol gauge by squeezing the rubber tube and then releasing it. The " setting " screw on the lantern is adjusted so that the red light is " on " when the top of the liquid column of the gauge is standing at the " setting " mark on the graduated tube. The detector shall be deemed not to be in correct working order if the red light is " on " before the top of the liquid column reaches the lower " tolerance " mark or if the red light is not " on " when the top of the liquid column has passed the upper " tolerance " mark.

PART II—TEST 2

The detector is turned to the " on " position by rotating the lantern against the case. After an interval of about one minute the detector is turned from the " on " position to the " off " position, and is then immediately turned back to the " on " position. Unless a light shows momentarily in the red bulb, the detector shall not be deemed to be in correct working order.

EXPLANATORY NOTE

(This Note is not part of this Order, but is intended to indicate its general purport.)

This Order approves the Ringrose Automatic Firedamp Alarm, Type 47/125, as a type of detector for the purposes of the Coal Mines General Regulations (Firedamp Detectors), 1939. Certain conditions of use and methods of test are specified.